ADA* for Roads & Bridges

Incorporating **PROWAG****

** Americans with Disabilities Act*
*** Public Rights of Way Accessibility Guidelines*

Transportation Accessibility:
The Design and Construction of Sidewalks, Curb Ramps, Detectable Warnings, Crossings, and Other Pedestrian Facilities within Public Rights of Way

Dean Perkins, Architect, ADA Coordinator

Introduction

- Brief overview of ADA
- How ADA impacts FDOT projects
- Features of Accessibility
- New Concepts
- Random Images
  - Some Good, Some Not So Good
- New "Issues"

Background of the ADA

- ADA - Civil Rights Law
  - 1964 - 1990 Federal Laws
    - 1964 Civil Rights Act (Title VI)
    - 1968 Architectural Barriers Act (federal buildings)
    - 1973 Rehabilitation Act (s. **504 - federal programs**)

Background of the ADA

- 1990 Americans with Disabilities Act
  - July 26, 1990 - signed
  - July 26, 1991 –ADA Standards.
  - January 26, 1992 – effective date
  - July 26, 2004 – new ADA guidelines (ADA/ABA)
  - Nov 23, 2005 – new PROW guidelines (PROWAG)
  - **Nov 26, 2006 – FHWA adopts ADA Standards for Transportation Facilities (ADASTF)**
  - **July 23, 2011 – Access Board issues NPRM for PROWAG** (public comments)
    - *Comment period closed 2/2/2012*

The Future of Accessibility within Public Rights of Way(?)

USDOT / FHWA recommends using ***PROWAG*** criteria where ***ADASTF*** do not address an issue.

- *Frederick D. Isler, Associate Administrator for Civil Rights – January 23, 2006*

RECOMMENDATION:

Start learning ***PROWAG!***

www.access-board.gov/prowac/nprm.htm

Transportation…….

ADA and Sidewalks

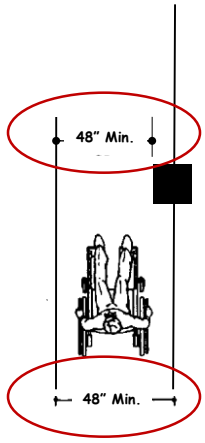
- ADA is a federal civil rights law
  - Enacted July 1990 – Effective January 1992
  - ***Title II – Public Services*** (of 5 Titles)
    - Title IIa – State and Local Governments (services and facilities)
    - Title IIb – Public Transportation (services and vehicles)
  - ADA: 'Public services' must be accessible
  - ADA: Public sidewalks along roadways *ARE* public services
  - Public sidewalks include pedestrian access routes
  - Curb ramps are part of pedestrian access route
  - Features along sidewalks must be accessible

Roadside Accessibility

- Accessible Route Requirements
  (PROWAG – Pedestrian Access Route)
  - Clear Widths
  - Running Slopes & Cross Slopes
  - Surfaces
  - Changes in Level, Gaps & Grates
  - Protruding Objects
    - Signs & Equipment
    - Landscape Materials

Accessible Route (AR) & Pedestrian Access Route (PAR)

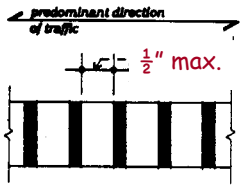
- AR = 36" continuous unobstructed path
  - **PAR = 48" (FDOT Stds. & PROWAG)**
- AR = 32" min. at a 'point' (24" max.)
  - **PAR = 48" (FDOT Stds. & PROWAG)**
- 60" x 60" passing space @ 200'
- Slopes:
  - ≤1:20 (≤5%) is not a ramp
  - >1:20 (>5%) is a ramp
  - 1:12 (8.3%) max. allowed *
- Cross-slope
  - 1:48 (2%) max. allowed *
  - 1:75 (1.5%) preferred

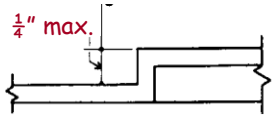


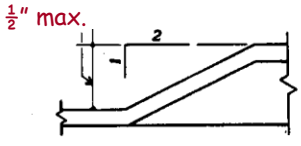
** Exceptions in PROWAG*

Surfaces

- Firm, stable, slip-resistant
  - Dry or wet!
- Changes in level
  - ≤ ¼" – Vertical
  - > ¼" ≤ ½" – 1:2 slope
  - > ½" – 1:12 slope (ramp)
- Gratings
  - ½" max. gap *(!!!)*

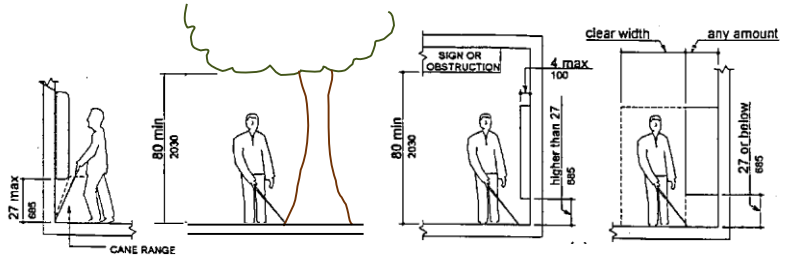






Protruding Objects

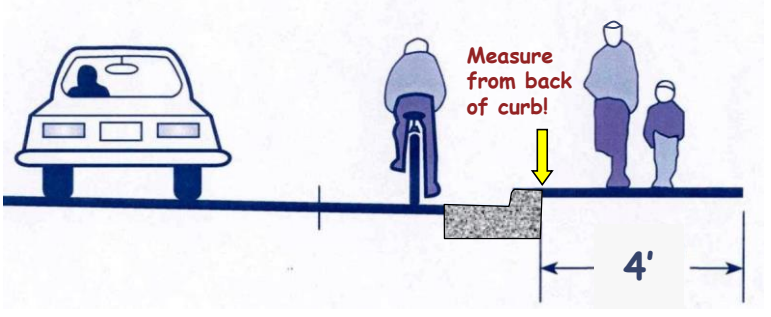
- 27" - 80" range above grade
- Post-mounted (≤12" offset, ≤4" in PROWAG)
- Wall mounted (≤4" offset)
- Overhanging (≥27"≤80" above walking surface)



Pedestrian Access Route (PAR)

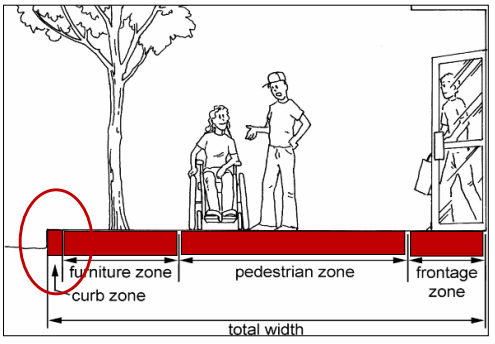
R302.3 Continuous Width

- The minimum continuous and unobstructed clear width of a pedestrian access route shall be 4 ft. exclusive of the width of the curb

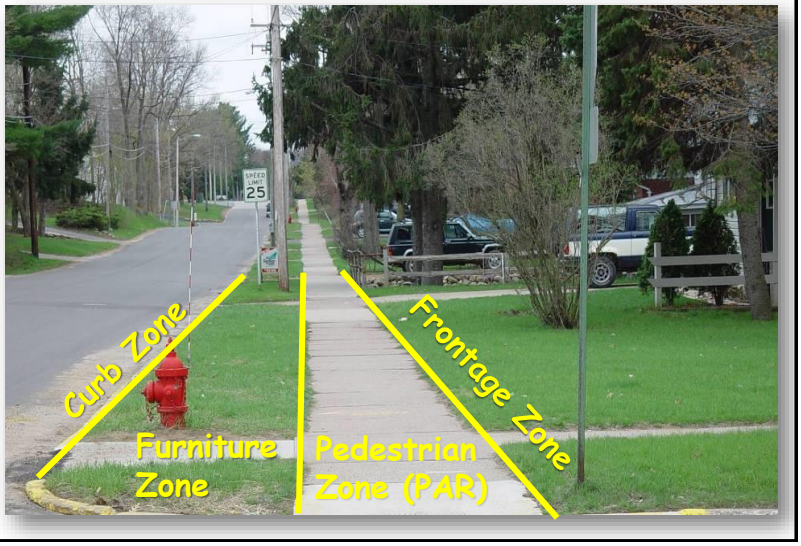


The Sidewalk 'Zone' System

- Curb Zone
- Furniture Zone
- Pedestrian Zone (PAR)
- Frontage Zone



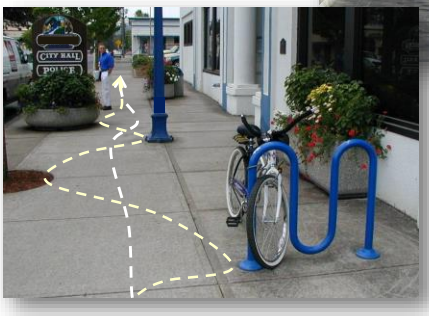
Zone System: Residential



Zone System: Commercial

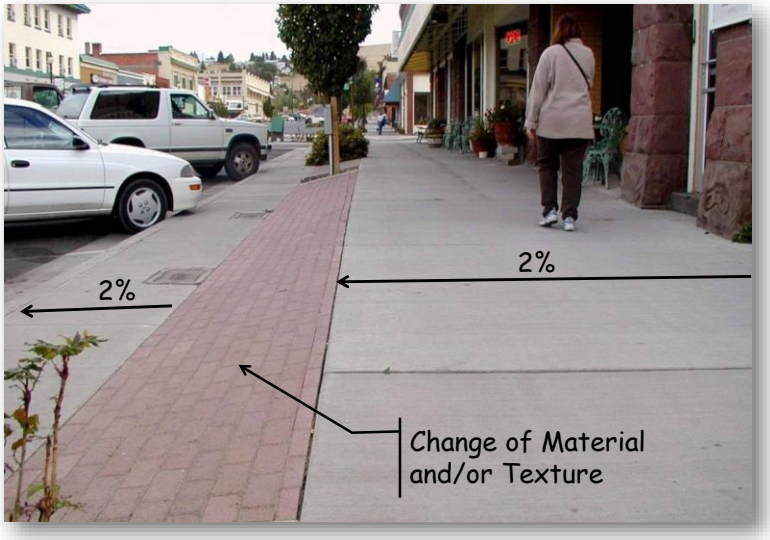
Furniture Zone

Carefully arranged street furniture leaves the sidewalk clear



Randomly arranged street furniture clutters the sidewalk and creates an 'obstacle course'

A Cross Slope Solution



Another…

A difference between AR & PAR!

For sidewalks within the public right of way . . .

Sidewalk grade – **ADASTF** vs. **PROWAG**

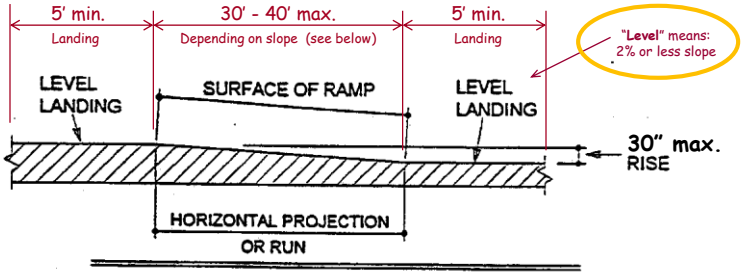
- ADASTF: Provide accessible route (AR)
- PROWAG: Match roadway grade (PAR)

ADASTF

PROWAG

Ramps – "supported slopes"

i.e., Bridges

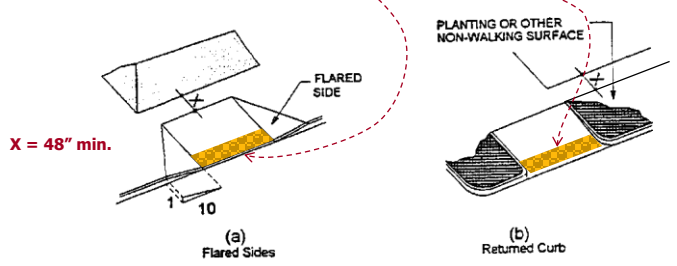


SLOPE	MAXIMUM RISE IN	MAXIMUM RISE MM	MAXIMUM HORIZONTAL PROJECTION FT	MAXIMUM HORIZONTAL PROJECTION M
1:12 TO < 1:16	30	760	30	9
1:16 TO < 1:20	30	760	40	12

Fig 16
Components of a Single Ramp Run and Sample Ramp Dimensions

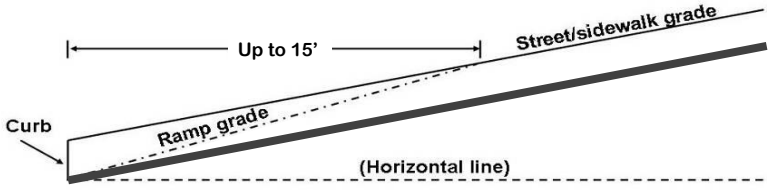
Curb Ramps

- Running Slopes (1:12 / 8.3% max.)
- Cross-slopes (1:48 / 2% max.)
- Landing at top (48" min.)
- Detectable Warnings



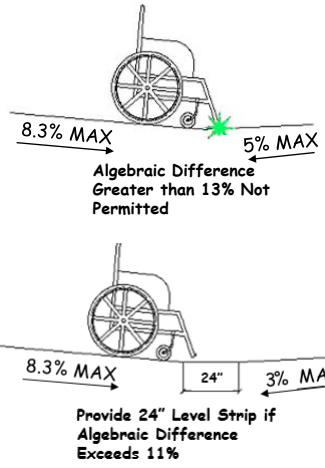
Curb Ramp Grade
R304

- Least slope possible is preferred
- Recommended maximum grade to allow for construction tolerance – 7.1%
- Maximum grade – 8.3%
- Exception: when "*chasing grade*," ramp length need not exceed 15', but slope must be uniform



Change of Grade (Counterslope) R303.3.5

- PROWAG allows 8.3% ramp and 5% grade at the adjacent street
  - 13.3% maximum
- Recommendation:
  - Provide 2' level area if greater than 11.3%

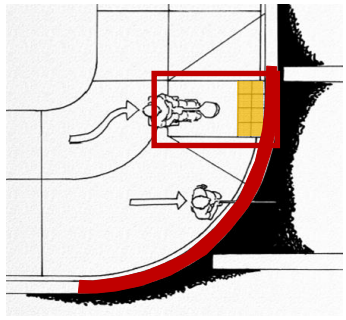


See notes in Index 304

Transportation……

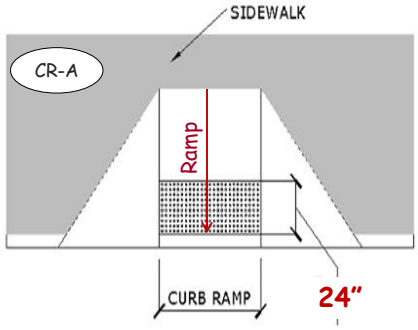
Curb Ramps and Detectable Warnings

- Curbs are an 'edge cue' for pedestrians who are blind or have low vision
- Curbs are a barrier for persons in wheelchairs
- Curb ramps remove the barrier for wheelchairs
- Curb ramps remove edge cue for peds with vision impairments
- Detectable warnings are a replacement cue to indicate location of the street



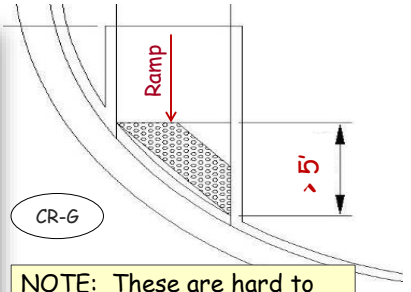
Perpendicular Curb Ramps R305.2.1

- Perpendicular Curb Ramp
  - Place DW at back of curb or at grade break



Directional/Linear Ramps
R305.2.1

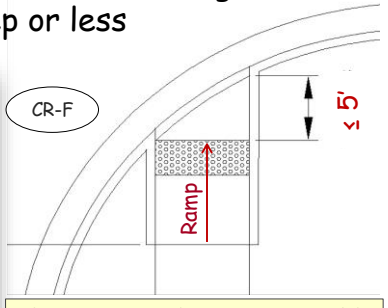
- Greater than 5 feet setback . . .
  - Place DW on bottom landing if level landing is more than 5' deep at any point



NOTE: These are hard to construct correctly

Directional/Linear Ramps
R305.2.1

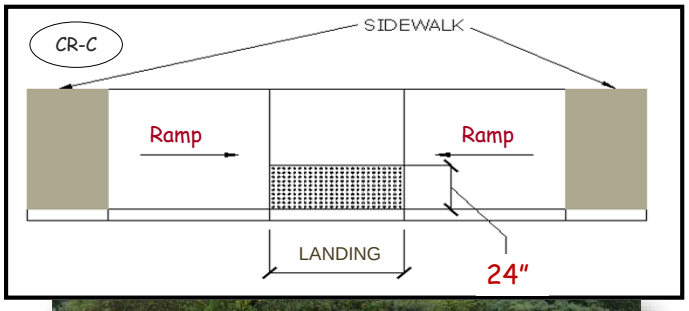
- Equal to or less than 5 feet setback from bottom of curb ramp . . .
  - Place DW at grade break if level landing at bottom of ramp is 5' deep or less



These are much easier to build

Parallel Ramps

R305.2.2



Blended Transitions

R305.2.3 – *"Full Width!"*

Detectable Warnings are Equivalent to "STOP" or "YIELD" signs'

- Detectable warnings help delineate the edge of the street for a pedestrian who is blind or has low vision
  - DWs generally, do not designate the best crossing location
  - DWs generally, do not provide alignment information

Detectable Warning Alignment

To align or not to align . . .

- Detectable warnings 'warn' of roadway edge
- Dome alignment typically *NOT* used as directional cue
  - Other methods: traffic sounds, sidewalk curbs, APSs (if available), etc.
- In a perfect world, truncated domes would be aligned with the crossing
  - Easier to construct
  - Easier to use
- However, not all curb ramp configurations or site conditions permit TD alignment

Detectable Warning Alignment

To align or not to align . . .

- So…
  - Dome alignment is *desirable*, ***but not required***

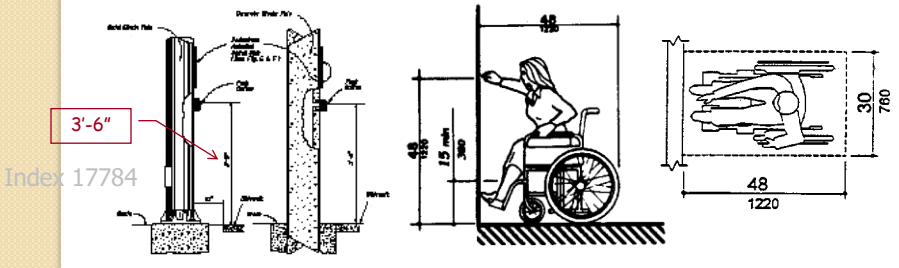
Perfect World

Real World

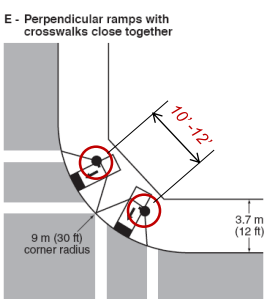
Pedestrian Controls

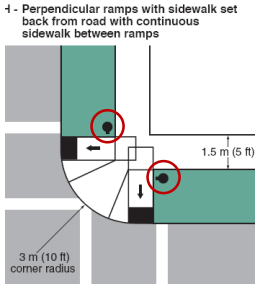
R209 & MUTCD 4E.08

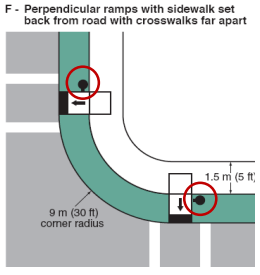
- In reach ranges (48" max.)
  - ***42" FDOT Standard***
  - 10" max. reach - over obstruction/edge of sidewalk
  - 2" dia. raised buttons
- Maneuvering space (30" x 48" min., level)



Pushbutton Locations
R403 & MUTCD 4E.08







- NOTE: It must be clear which button controls which crossing. (per MUTCD).

Accessible Pedestrian Signals
R209 & MUTCD 4E.09-4E.13

- For pedestrians with vision impairments
- Used in conjunction with pedestrian signal timing
- Add "non-visual" information:
  - Tactile features
  - Audible tones
  - Vibrating surfaces
  - Speech messages
- Must indicate which crossing is served by each device
  - If less than 10'-12' apart, must 'talk' to you

Accessible Pedestrian Signals

On APL

Speakers

Tactile Arrows

APS Location

Good placement of pedestrian detectors with APSs

Not-so-good placement

Pedestrian Crossings
R306

- Slope of crossing = cross-slope of roadway
- Cross-slope of crossing = grade of roadway
- Cross-Slope of crossing:
  - '**STOP**'/'**YIELD**'-controlled: 2% max.
  - Non stop/yield-controlled: 5% max.
    - i.e., **Signal** or No Control
  - Mid-block: Match grade of roadway

Pedestrian Crossing Treatments

- Enhanced signs
- In-pavement flashers
- Detectable warnings

RRFB

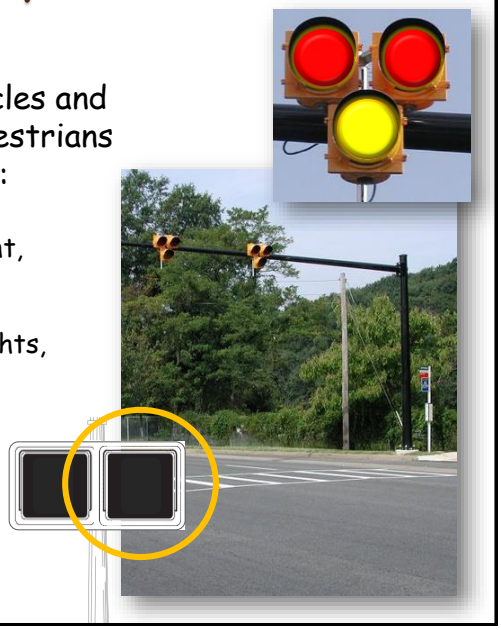
Rectangular Rapidly Flashing Beacon

RRFB

"Push button to activate"

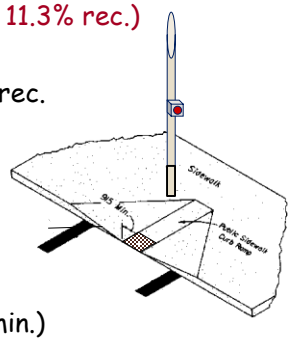
Pedestrian Hybrid Beacon
MUTCD 4F

- Stays dark for vehicles and solid 'hand' for pedestrians until activated, then:
- **For vehicles:**
  1. Flashing **Yellow** light,
  2. Solid **Yellow** light,
  3. Solid **Red** lights
  4. Alternating **Red** lights,
  5. Then dark
- **For pedestrians:**
  1. Solid **Hand**,
  2. Solid **Hand**,
  3. Solid **Walk**,
  4. Flashing **Hand**
  5. Solid **Hand**



Crossings
R306

- Curb Ramp "wholly within" marked crossing
- Check Transitions (13.3% max., 11.3% rec.)
  - Ramp slope = 8.3% max.
  - Roadway cross-slope = 5% max., 3% rec.
- Verify Slopes (1:12 max.)
- Cross-slopes
- Look for Level changes
- Pedestrian Controls
  - Level Maneuvering Space (30"x48" min.)



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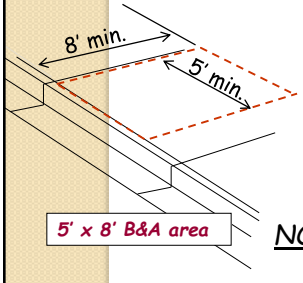
Bus Stops
R308

- When siting a new bus stop…
  - Must be on PAR
    - 48" min.
    - 60" recommended
    - This may be sidewalk or paved shoulder
  - Must have accessible approach to bus stop
    - 48" min. width – 60" recommended
      - Leads to / part of boarding & alighting area
    - Meets running slope/cross slope criteria
    - Firm, stable & slip-resistant
  - Must consider potential construction of boarding and alighting area & other features

Bus Stops

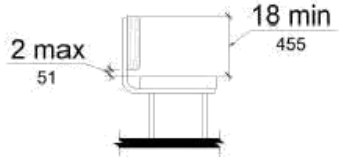
- ***If provided*** – Boarding & Alighting area:
  - Place for bus lift/ramp to deploy
  - "Firm, stable and slip-resistant" surface
    - (ADAS & PROWAG)
  - Must connect to streets, sidewalks, etc.
    - Sidewalk, curb ramps, etc.
  - 5' min. width – parallel to roadway
  - 8' min. depth – perpendicular to roadway



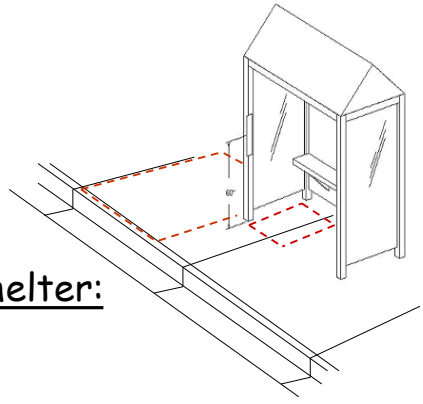
NOTE: *If low-floor, ramp-equipped bus is used, the B&A area should be raised (curb height).*

Bus Stops

- ***If provided*** – bus bench:
  - Must be on PAR
  - Must not block PAR
    - 48" min. clearance – 60" recommended
  - Must have maneuvering space adjacent to bench
    - 30" x 48" min.; firm, stable & slip-resistant surface
    - Allow shoulder-to-shoulder seating for companion
  - Allow transfer to bench (if desired)
    - Seat length: 42" min.
    - Seat height: 17"-19"
    - Seat back: 2"-18" above seat
    - Armrest recommended



Bus Stops



- ***If provided*** – bus shelter:
  - Must be on PAR
  - Must not block PAR
    - 48" min. clearance – 60" recommended
  - 30" x 48" min. clear floor area within shelter
  - 48" min. approach to clear floor area
  - 48" min. approach to boarding & alighting area

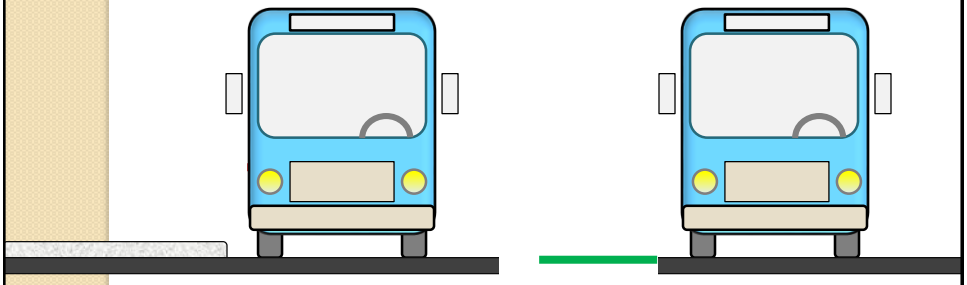
Rural bus stops

- Primary Issues:
  - Flush shoulder – No curb
  - Shoulder is sloped away from the roadway
  - Most 'kneeling' buses are designed to deploy front ramps onto 6" high curbs
    - Up to 1:4 slope allowed on bus ramp deployed onto curb *(ADAASTV*, 49 CFR 38.23(c)(5))*
  - Use on flush shoulder causes ramp to be too steep for safe use.

** ADAASTV = ADA Accessibility Specifications for Transportation Vehicles*

- *Slope may be 1:4 if ≤3" above 6" curb*
- *Slope may be 1:6 if >3" to ≤6" above 6" curb*
- *Slope may be 1:8 if >6" to ≤9" above 6" curb*
- *Slope may be 1:12 if >9" above 6" curb*

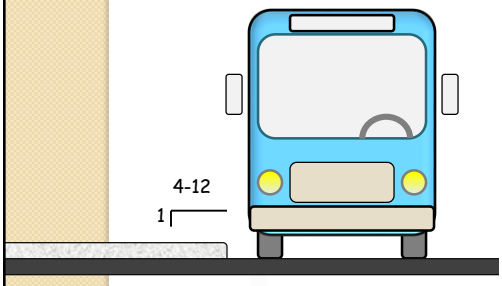
Bus Ramp & Lift Design
High-floor bus with lift at rear door



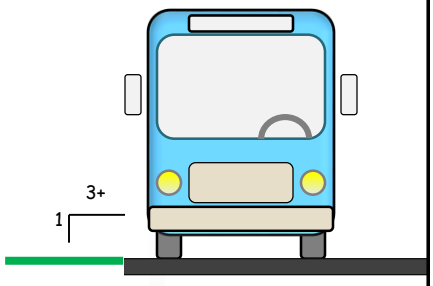
Lift: May be deployed on 6" high curb or at ground level – level platform.

Bus Ramp & Lift Design
Low-floor bus with ramp at front door

Probably the most common



Ramp: Designed to be deployed on 6" high curb to provide 1:4 or less slope. *(Max. allowed under ADASTV)*

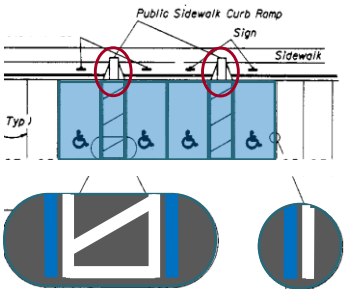


Ramp: Deployed at ground level is too steep – 1:3 slope or more.

Rural bus stops

Parking

- Accessible space
  - Width = 12'-0" min.
- Access aisle
  - Width = 5'-0" min.
- Curb ramp
  - Outside space & aisle
- Slopes
  - 1:48 max. any direction



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Exceptions & Variations *"Technical Infeasibility"*

- What to do if you cannot fully comply?
  - Each facility or part of a facility altered by a public entity in a manner that affects or could affect the usability of the facility or part of the facility shall, to the maximum extent feasible, be altered in such manner that the altered portion of the facility is readily accessible to and usable by individuals with disabilities *(§35.151(b)(1))*

Exceptions & Variation
"Technical Infeasibility"

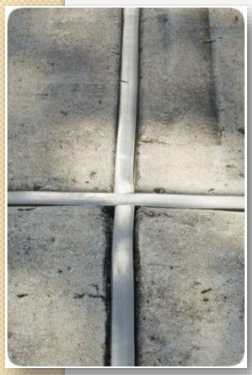
- What to do if you cannot fully comply? (cont.)
  - If full compliance would be structurally impracticable, compliance is required to the extent that it is not structurally impracticable.
  - Full compliance will be considered structurally impracticable only in those rare circumstances when the unique characteristics of terrain prevent the incorporation of accessibility features. *(§35.151(a)(2))*

Maintenance of PAR
28 CFR 35.133

- Title II of the ADA requires public entities to maintain equipment and features of facilities that are required to provide ready access to individuals with disabilities

Potential Solutions

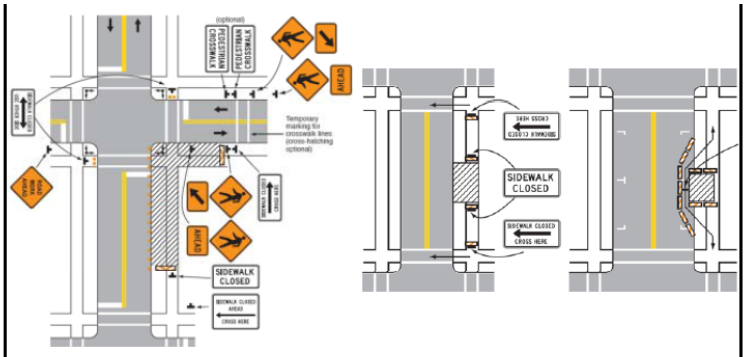
- Sidewalk Grinding
- Flexible Pavement
- Joint Materials



Alternate Pedestrian Routes
R205 & R303 and MUTCD 6D & 6G

- Alternate Pedestrian Access Routes are required when an existing pedestrian access route is blocked by construction, alteration, maintenance, or other temporary condition.

Alternate PARs



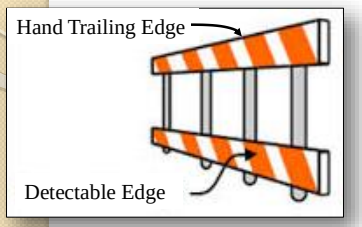
References Part 6 of the MUTCD

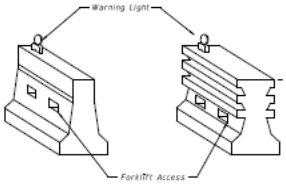
See similar requirements in FDOT Index 660

Alternate PARs

- R205 specifies that the alternate pedestrian access route shall be:
  - Provided on the same side of the street as the disrupted route, to the maximum extent feasible
  - Where exposed to adjacent construction, traffic or other hazards, shall be protected with a *pedestrian barricade* or *channelization device*
    - Continuous, stable, non-flexible
    - Consist of features identified in the ***MUTCD*** Chapter 6F
      - ***Plastic tape is not acceptable!!!***
      - ***Rows of barrels and/or cones are not acceptable…***

Longitudinal Channelizing Devices (LCDs)





LONGITUDINAL CHANNELIZING DEVICE

12. *For pedestrian longitudinal channelizing devices, the device shall have a minimum of 8" continuous detectable edging above the walkway. A gap not exceeding a height of 2" is allowed to facilitate drainage. The top surface of the device shall be a minimum height of 32" and have smooth connection points between the devices to facilitate hand trailing. The bottom and the top surface of the device shall in the same vertical plane. If pedestrian drop-off protection is required, the device shall have a footprint or offset of at least 2', otherwise the device must be 42" in height above the walkway and be anchored or ballasted to withstand a 200 lb. later point load at the top of the device.*

FDOT Design Standards -Index 600

Examples of LCDs

Construction Work Zones

- Unfortunately, too many bad examples…

Latest from DOJ & DOT!

- Resurfacing and Curb Ramps
- Clarification of existing regulations:
  - 28 CFR 35.151, "alterations require the inclusion of accessible features"
- New "Joint Technical Assistance"
  - What is an 'alteration', and
  - What is 'maintenance'

U.S. Department of Justice
Civil Rights Division
Disability Rights Section

U.S. Department of Transportation
Federal Highway Administration

Department of Justice/Department of Transportation Joint Technical Assistance[1] on the Title II of the Americans with Disabilities Act Requirements to Provide Curb Ramps when Streets, Roads, or Highways are Altered through Resurfacing

Title II of the Americans with Disabilities Act (ADA) requires that state and local governments ensure that persons with disabilities have access to the pedestrian routes in the public right of way. An important part of this requirement is the obligation whenever streets, roadways, or highways are *altered* to provide curb ramps where street level pedestrian walkways cross curbs.[2] This requirement is intended to ensure the accessibility and usability of the pedestrian walkway for persons with disabilities.

An alteration is a change that affects or could affect the usability of all or part of a building or facility.[3] Alterations of streets, roads, or highways include activities such as reconstruction, rehabilitation, *resurfacing*, widening, and projects of similar scale and effect.[4] Maintenance activities on streets, roads, or highways, such as filling potholes, are not alterations.

Without curb ramps, sidewalk travel in urban areas can be dangerous, difficult, or even impossible for ... use wheelchairs, scooters, and other mobility devices. Curb ramps allow people with ... access to the sidewalks and to pass through center islands in streets. ... travel in streets and roadways and are put in danger or are ... with disabilities may simply choose not to ... prevented from ... ke this risk and will not venture ... constitutes an alteration under ... ways intersect the resurfaced ... been discussed in a variety of ...

www.fhwa.dot.gov/civilrights/programs/doj_fhwa_ta.cfm

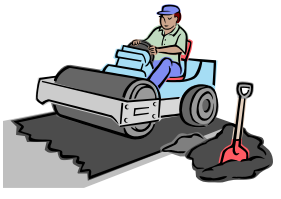
Alterations vs. Maintenance

- An alteration is a change that affects or could affect the usability of all or part of a building or facility.
  - Alterations of streets, roads, or highways include activities such as reconstruction, rehabilitation, ***resurfacing***, widening, and projects of similar scale and effect.
- Maintenance activities on streets, roads, or highways, such as filling potholes, are not alterations.

www.ada.gov/regs2010/titleII_2010/titleII_2010_regulations.htm - S. 35.151(b)(1)

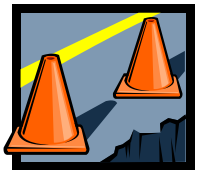
When Curb Ramps *ARE* required - Alterations

- Curb Ramps are required if resurfacing involves work on a street or roadway spanning from one intersection to another, and includes overlays of additional material to the road surface, with or without milling.
  - *Basically, if you're adding or replacing asphalt.*



When Curb Ramps are NOT Required - Maintenance

- Treatments that serve solely to seal and protect the road surface, improve friction, and control splash and spray are considered to be maintenance because they do not significantly affect the public's access to or usability of the road.
  - *Basically, if you're just coating the surface and not adding asphalt.*



Prior to DOJ/DOT Agreement...

MAINTENANCE

USDOJ	USDOT
Patching Potholes	*"Non-structural" resurfacing*

ALTERATION

USDOJ	USDOT
Everything Else	*"Structural" resurfacing*

After to DOJ/DOT Agreement...

MAINTENANCE

plus

Chip Seals	Fog Seals	Scrub Seals
Crack Filling & Sealing	Joint Crack Seals	Slurry Seals
Diamond Grinding	Spot High-Friction Treatments	
Joint repairs	Dowel Bar Retrofit	Pavement Patching

ALTERATION

Addition of New Layer of Asphalt

Cape Seals

Hot In-Pl…

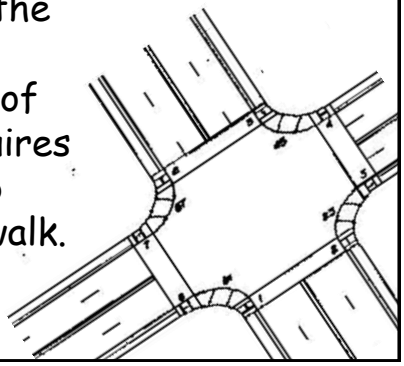
Mic… …ded Surface Course

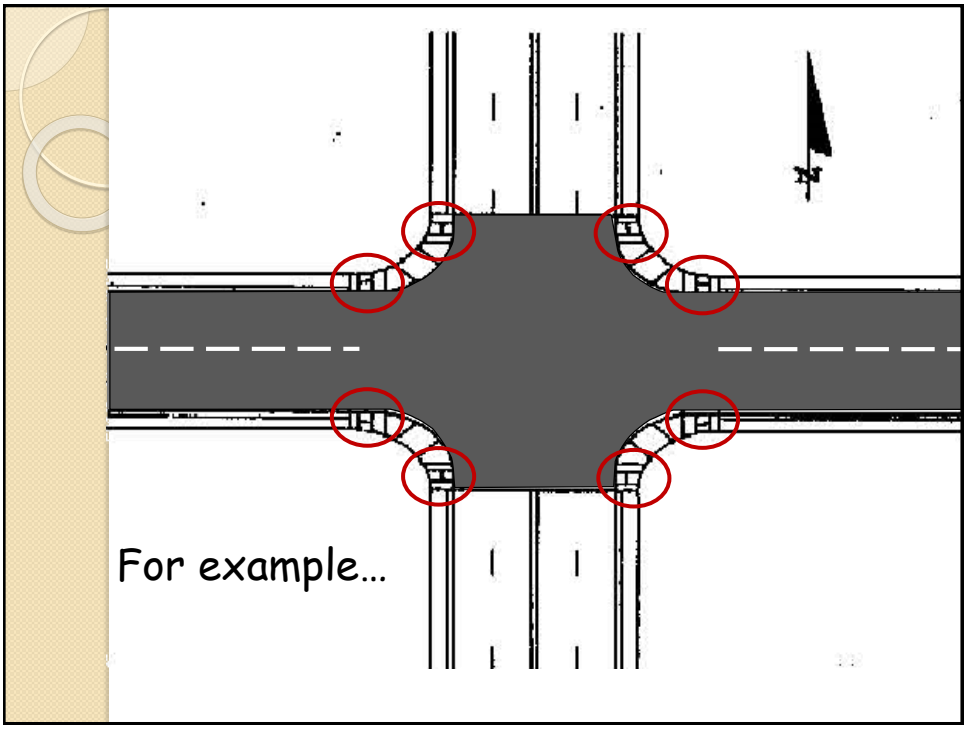
3-R

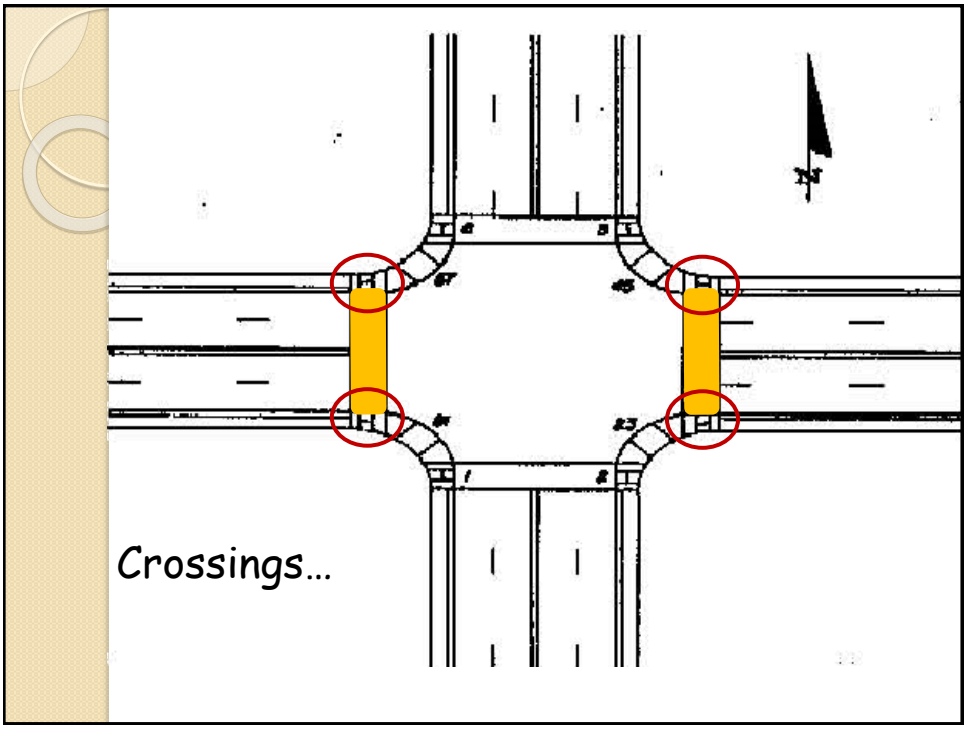
Caution: In some cases, the combination of several maintenance treatments occurring at or near the same time may qualify as an alteration and would trigger the obligation to provide curb ramps.

What About Crosswalks?

- Crosswalks constitute distinct elements of the right-of-way intended to facilitate pedestrian traffic.
- Regardless of whether there is curb-to-curb resurfacing of the street or roadway in general, resurfacing of a crosswalk also requires the provision of curb ramps at that crosswalk.




For example…


Crossings…

Please Note:

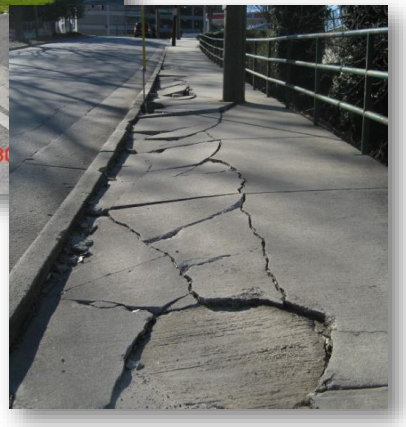
- This TA ***does not*** describe new requirements from DOJ or DOT.
- This TA ***does not*** change Florida DOT policy.
- ***This is a clarification of current requirements.***

Random Images

- Some good
- Some not so good

This is what we want…

Not this . . .



Or this . . .


Nice!

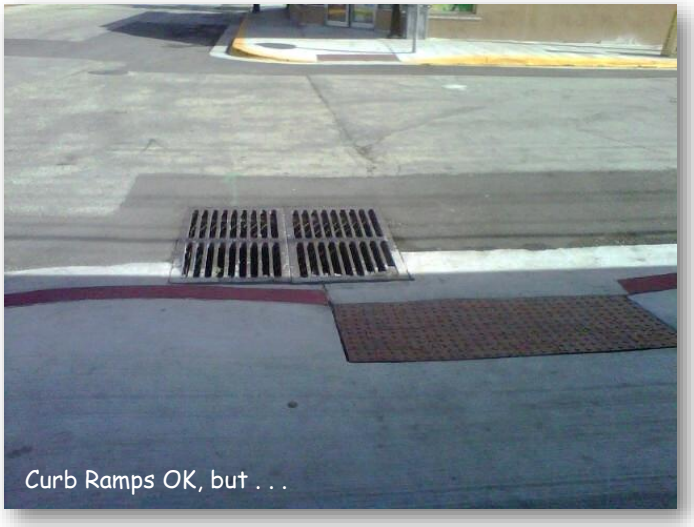

NO
THRU
TRUCKS
Ummm...


?
This (sorta) works


Maintenance please!!!

Old Crossing

Fixed Crossing



Curb Ramps OK, but . . .

Nice!


Close… DW needs to be full width


Very Good!

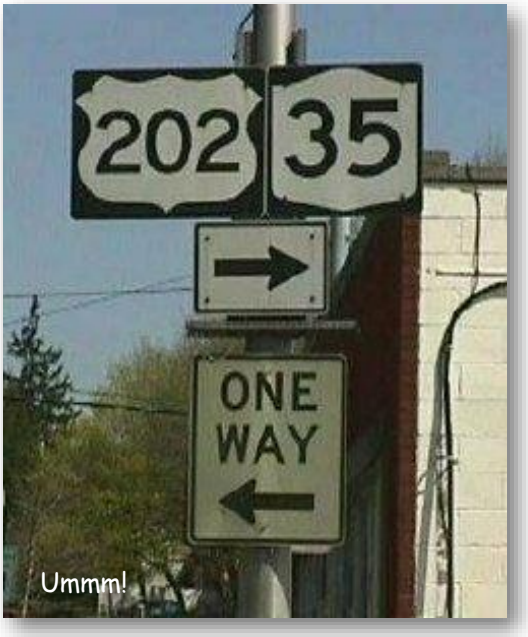

Malone
END
MARION
We're not finished, right…?


Very Good!

Creative path around large tree
up and over the roots

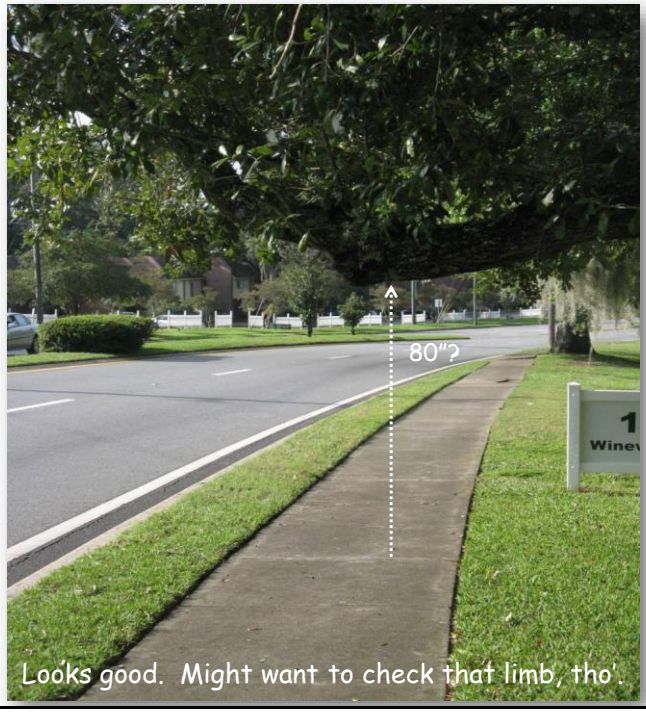

Combination return curb and flared side


Full Width … Good!



Ummm!

Good start, but…



Very Good!


Very Good!


ADOPT-A-HIGHWAY
This CAN be fixed.

Hot Issues

- Elements, Features, Devices on the SHS provided by others
- Could these get FDOT in trouble?
  - Bus Stops
    - Shelters, Benches, etc.
  - Railroad Crossings
    - Sidewalk gaps, materials, flangeways, etc.
  - Utilities
    - Poles, hydrants, pull-boxes, etc.


Nice shelter – But, how do I get here?

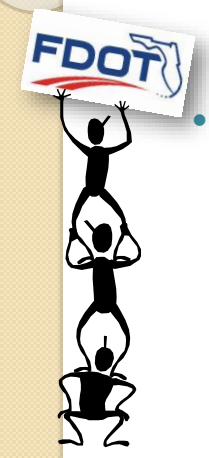

Potentially unsafe for all peds,
especially those using mobility aids

"Hey… Let's cut up the sidewalk an put in a pole!"

Summary

- ***ADA Title II – Public Services***
  - Public services must be accessible
  - Public sidewalks *are* public services
  - Public sidewalks are accessible routes
  - Curb ramps are part of accessible route
  - Features on sidewalks and curb ramps must be accessible

Help is available



- State:
  - FDOT District ADA Coordinator
  - FDOT C.O. ADA Coordinator
- Federal:
  - U.S. Access Board
  - U.S. Department of Justice
  - U.S. Department of Transportation
    - FHWA
    - FTA
    - FRA

Resources

U.S. Access Board
- Accessibility Guidelines - ADAAG
- www.access-board.gov

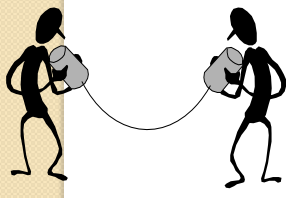
U.S. Dept. of Justice - ADA
- Accessibility Standards for Facilities & Sites
- www.ada.gov

U.S. Dept. of Transportation – FHWA
- Accessibility Guidance & Standards for Public Rights of Way
- www.dot.gov/citizen_services/disability/disability.html

Florida Dept. of Transportation - FDOT
- ADA information on Website
- www.fdot.gov/designsupport/ADA/default.shtm

Contact us...

Dean Perkins, Architect
ADA Coordinator
850-414-4359
dean.perkins@dot.state.fl.us
or
Your District
ADA Coordinator(s)



Thank You!

Merci! *Todah Rabbah*
Arigato!
Dhanya Vaad!
Xie Xie!
Gracias!
Shokran!
Danke!
Live long and prosper!


Anna George
What WERE they thinking!?!